

METHODS FOR ROUTING PACKETS
ON A LINEAR ARRAY OF PROCESSORS

ABSTRACT OF THE INVENTION

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There is provided a method for routing packets on a linear array of N processors connected in a nearest neighbor configuration. The method includes the step of, for each end processor of the array, connecting unused outputs to
10 corresponding unused inputs. For each axis required to directly route a packet from a source to a destination processor, the following steps are performed. It is determined whether a result of directly sending a packet from an initial processor to a target processor is less than
15 or greater than $N/2$ moves, respectively. The initial processor is the source processor in the first axis, and the target processor is the destination processor in the last axis. The packet is directly sent from the initial processor to the target processor, when the result is less
20 than $N/2$ moves. The packet is indirectly sent so as to wrap around each end processor, when the result is greater than $N/2$ moves. The method may optionally include the step of

randomly sending the packet using either of the sending steps, when the result is equal to $N/2$ moves and N is an even number.

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